

Omnia Poised on the Cutting Edge

Mike Callaghan

The **Cutting Edge Omnia.fm** produces a new benchmark in FM processing.

Few things matter more to program directors than the sound of a station. They work hours to get the music mix as perfect as possible, and then rely on us, the engineers, to achieve the best in processing before it goes on the air. Unfortunately for them, and fortunately for us, we don't have to listen to dozens of new hits each week to fill our end of the bargain.

Mike Dorrough introduced multiband processing, the emphasizing (and separate processing) of each of the frequency bands. The result was a wide, fat sound, even from wimpy-sounding records. The principle of multiband processing was simple to understand, and that simplicity sold a lot of processors and made Dorrough well known in the radio industry.

Today, things are different. The principles ingrained in the various processing systems are much more complex. And since the advent of DSPs and the new toolbox of algorithms they offer, the science of processing has become even more transcendental and mysterious.

As complicated as processing is, the result is easy to judge: What sounds best? Trying to explain multiband processing was hard enough, but today's processing is inexplicable.

Invariably, the bottom line ends up being the same in 1998 as it was in 1968: What's the loudest? What makes the most records sound the best on the air? Can we be the loudest station on the dial? Most important, can we be loud without scrunching up the music and driving away listeners?

These questions have been addressed by Frank Foti, president of Cutting Edge Technologies, in the new Omnia.

Not only does the Omnia.fm bring a new level of clarity and smoothness; it does it consistently, reliably and with ease.

Assets aplenty

The first thing you notice about the Omnia is its look. There is no boxiness to its front panel. Smooth curves and pleasing appearance make it look exciting even before you unpack the power cord. The two controls fore cast an easy and intuitive user interface; this rings true when you start through the manual.

A jog wheel and a push button are all that's needed to step through the Omnia's capabilities.



Mike Callaghan shows off his Omnia.fm.

The audio interface has all the options you could need. Ins and Outs are not only the conventionals, but Foti has developed a new 'Direct Digital' output that allows direct driving of the modulator stage in the exciter. It's not AES/EBU or fiber-optic — it's something even better. At present, this precludes having the Omnia and the transmitter apart from each other, but QEI, maker of the CatLink, promises to have a pair of modules shortly that will allow separate operation.

For those that trust numbers and specs more than their ears when evaluating processors, the Omnia features Four-Band, Phase-Linear, Dynamically Flat, Time-Aligned Crossovers. The Omnia has virtually eliminated the artifacts when the outputs of the four bands are recombined. This problem has historically plagued multiband processors from their onset.

The Omnia Stereo Encoder uses an all-digital, numeric implementation to produce stereo separation better than 65 db 38 kHz. Suppression exceeds 75 db down. If your pro gram director really wants to go crazy, the built-in composite clipper precedes the 19 kHz pilot insertion, avoiding the 'bobbing pilot' reading on the modulation monitor. Stereo noise is better than 80 db down, system distortion is less than 0.017 percent. Input impedance is 10.5 Kohms balanced. Maximum Input Level is +24 dbu. Minimum is -10 dbu, so you may need a line amplifier if you have no choice but to use 15 kHz phone lines.

As one would expect, the unit arrives with a number of bodacious presets that can serve as starting points for your particular processing recipe; you and the program director can start off sounding great, and things just get better from there.

Foti's experience as a "guerrilla" type of engineer are evident in these features:

- A simple Web server built into the system provides a rich graphical interface to show what the processor is doing, as well as allowing repeatable and super-easy adjustment changes.

- Two levels of control are available, based on your experience and familiarity. This is like providing a pair of training wheels to get you off to a fast start while still offering an advanced interface for the ultimate in fine tuning.

- A "Thunder Boost" circuit introduces up to 12 db of wall-shaking thunder. More than just an EQ circuit, this uses low-end time alignment to add clean bass response without sacrificing loudness. Note that not all exciters can handle this boost; you *must* have a dual-speed PLL in the AFC loop of the exciter or it will unlock with embarrassing consequences.

- A headphone jack on the front panel. What a concept! Now you, too, can hear the air signal in the transmitter room despite the *de facto* wind tunnel running inside most of them.

- Daypart Automation. Everything has a clock in it these days, and the Omnia is no exception. Change the way things sound at night! Drop the highs to keep those female listeners when you know they're listening.

The only thing that keeps the Omnia from being totally plug-and-play is the need for a line amp at the input. The KIIS-FM Studio Switcher is passive; we input +8 from the studios, and get -20 or so at the output. While most earlier processors were happy with equalized phone lines at that level, the Omnia needs more. A simple ATI line amp filled the need. We use the composite output with a CatLink, which will be upgraded to the Direct Digital system as soon as it is available.

The Omnia is easy to use and set up. The manual is well written and easy to follow.

The Cutting Edge Omnia has been an extremely important part of the KHS-FM sound for over six months. We've continued looking at other processors, but nothing has come even close in providing the full, rich, competitive sound we use to tantalize our listeners.

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